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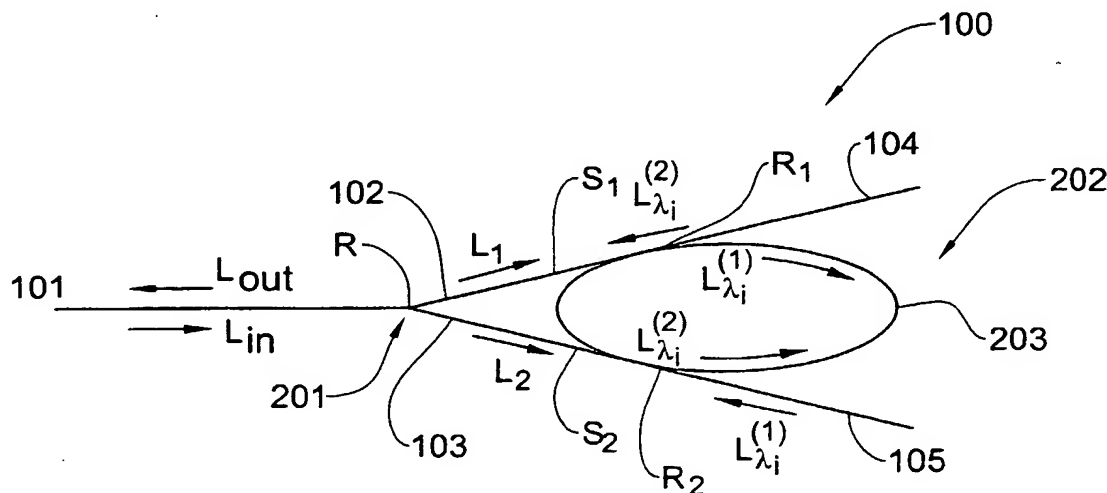
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(54) Title: OPTICAL FILTERING DEVICE AND METHOD



(57) Abstract: A wavelength selective filter device is presented suitable for use as a part of a laser cavity for processing light output of a gain section of the laser cavity. The filter structure comprises a resonator structure including at least one closed-loop resonator; and defines an optical coupler structure for coupling light from an input/output of the gain section to propagate through said resonator structure, and a light reflector structure for reflecting light filtered by said resonator structure to propagate through said resonator structure to said input/output of the gain section. The filter structure is configured so as to define two optical paths of substantially the same lengths for light propagation in the resonator structure from and to the coupler structure.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IL 03/00813

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H01S5/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/085595 A1 (MAY RANDY DEAN ET AL) 4 July 2002 (2002-07-04)	1-4, 17-21
A	paragraph '0038!; figures 7,10	16
A	DE 101 05 731 A (INFINEON TECHNOLOGIES AG) 5 September 2002 (2002-09-05) the whole document	1,5-15, 17-21
A	WO 01/27692 A (LAMBDA CROSSING LTD ;MARGALIT MOTI (IL); ORENSTEIN MEIR (IL)) 19 April 2001 (2001-04-19) cited in the application the whole document	1-21
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- 'P' document published prior to the international filing date but later than the priority date claimed

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- 'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- 'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- '&' document member of the same patent family

Date of the actual completion of the international search

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03/06/2004

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# INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>LITTLE B E ET AL: "MICRORING RESONATOR CHANNEL DROPPING FILTERS"</p> <p>JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US,</p> <p>vol. 15, no. 6, 1 June 1997 (1997-06-01), pages 998-1005, XP000700611</p> <p>ISSN: 0733-8724</p> <p>the whole document</p>	1-21
E	<p>WO 03/071641 A (MA YONG ;AVRIO TECHNOLOGIES INC (US))</p> <p>28 August 2003 (2003-08-28)</p> <p>abstract; figures 2A,6A,6B</p>	1,16-18

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IL 03/00813

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 2002085595	A1	04-07-2002	US	2002085609 A1	04-07-2002
			WO	02054544 A2	11-07-2002
DE 10105731	A	05-09-2002	DE	10105731 A1	05-09-2002
			WO	02063732 A2	15-08-2002
			EP	1358701 A2	05-11-2003
			TW	522620 B	01-03-2003
WO 0127692	A	19-04-2001	AU	7942000 A	23-04-2001
			CA	2385020 A1	19-04-2001
			EP	1221069 A1	10-07-2002
			WO	0127692 A1	19-04-2001
			JP	2003527625 T	16-09-2003
			US	6668006 B1	23-12-2003
			AT	251761 T	15-10-2003
			AU	5252201 A	07-11-2001
			AU	9219301 A	26-03-2002
			DE	60100936 D1	13-11-2003
			EP	1248960 A2	16-10-2002
			WO	0181962 A2	01-11-2001
			WO	0223242 A2	21-03-2002
			US	6504971 B1	07-01-2003
WO 03071641	A	28-08-2003	WO	03071641 A2	28-08-2003